

A new species of Cecidomyiidae (Diptera) injurious to Protea flowers in South Africa

by

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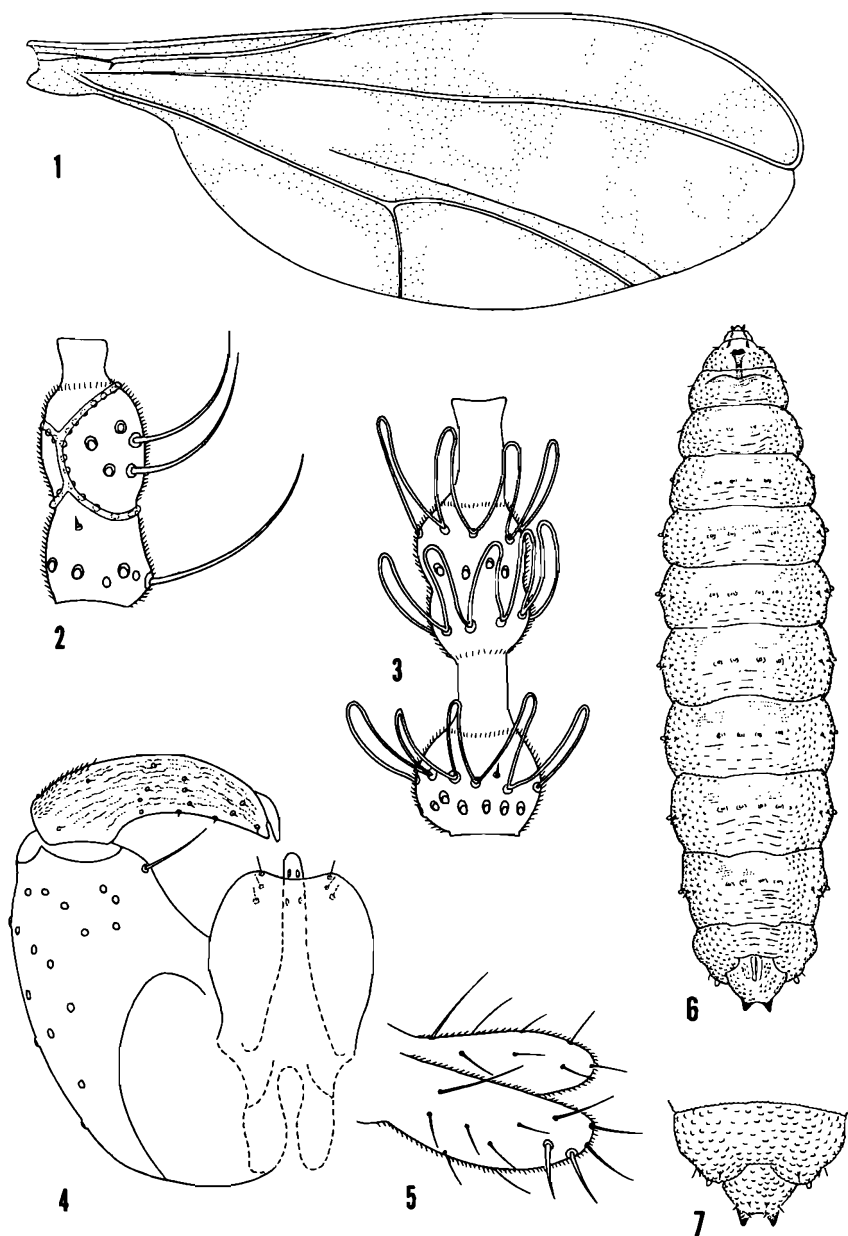
SYNOPSIS

Resseliella proteae (Diptera: Cecidomyiidae), a pest of *Protea* flowers in South Africa, is described and illustrated. *R. proteae* is occasionally intercepted in cut flowers at United States ports of entry.

Between the years 1972 and 1983, cecidomyiid larvae crawling about in heads of *Protea* flowers from South Africa were intercepted seventeen times at United States ports of entry. These larvae all belonged to *Resseliella*, a genus hitherto unknown from the Afrotropical Region. Larvae of most known species of *Resseliella* are generally similar to one another, so adults were needed to characterise what I presumed to be a new species. Recently, Dr Brian Stuckenberg, Director of the Natal Museum, South Africa, referred to me a series of adults of a *Resseliella* species that were reared from flowers of *Protea repens* (L.) L. by D. Rust, Stellenbosch, South Africa. Mr Rust found the characteristic red larvae between the bracts, often in association with black spots and depressions. A few of the larvae bored to the centre of the flower head. Considerable damage was evident in affected flower heads. When fully grown the larvae drop to the ground and form cocoons. The biology of the new species is being investigated further by Mr Rust.

The genus *Resseliella* is known from 34 species in North America and Eurasia and is very diverse biologically, as a few examples listed below will illustrate. In North America, *R. coryloides* (Foote) lives freely among cone scales of many Pinaceae; *R. liriodendri* (Osten Sacken) forms blister galls on leaves of *Liriodendron tulipiferae* L. (Magnoliaceae); *R. clavula* (Beutenmüller) forms a club-shaped gall on twigs of *Cornus florida* L. (Cornaceae). In Europe, *R. crassa* (Möhn) feeds on resin of *Abies alba* L. (Pinaceae) and *R. meridionalis* (Mamaev) lives on decaying cambium of tree stumps. In Japan, *R. soya* (Monzen) feeds in petioles of the soybean, *Glycine max* (L.) Merr. (Fabaceae). The great diversity of hosts and habits indicates that the genus has had a long evolutionary history. Other genera of cecidomyiids, such as *Dasineura* and *Contarinia*, also show great diversity in habits, but are much richer in number of species.

The genus *Resseliella* belongs to the supertribe Cecidomyiidi of the subfamily Cecidomyiinae, but further affinities are not yet apparent. Larvae of this genus are distinctive for the divided terminal segment bearing the two large papillae and for the rugose integument (Figs 7-8). The adult tarsal claws are bent at the basal



Figs 1-7. *Resseliella proteae*. 1, wing; 2, ♀ third antennal flagellomere; 3, ♂ third antennal flagellomere; 4, ♂ terminalia; 5, ♀ cerci; 6, larva (generalised for genus; ventral); 7 same, terminal segments (dorsal).

third, unlike most other phytophagous cecidomyiids of the supertribe which instead have the claws curved beyond midlength. The females have a very long ovipositor and the males conservative terminalia with a simple hypoproct.

***Resseliella proteae* sp. n.**

Adult. Eyes large, about 10 facets long at vertex. Head without postvertical peak. Frontoclypeus with several setae. Labrum short, triangular. Labella short, hemispherical in frontal view. Palpus 4-segmented. Antennal flagellomeres 1 and 2 connate; ♂ flagellomere 3 (Fig. 3) binodal, trifilar, the circumfilar loops more or less regular, basal node and neck darker than remainder of flagellomere; ♀ flagellomere 3 (Fig. 4) darker on basal quarter and on neck than elsewhere.

Anepisternum bare or with a few scales near middle. Anepimeron with a vertical row of several setae and a few scales interspersed. Wing membrane patterned as in Fig. 1. Legs annulate with alternating light and dark scales (Fig. 2). Claws robust, strongly bent at basal third, anterior claws toothed, mid and hind claws simple. Empodia attaining bend in claws.

♂ Abdomen. Tergites 1–6 with continuous, single, caudal row setae, several lateral setae, a basal pair of trichoid sensilla, and covered with scales; tergite 7 weakly sclerotised caudomesally, with a few caudal setae laterally, a few lateral setae, 2 basal trichoid sensilla, and sparse scales; tergite 8 sclerotised only basally, the basal pair of trichoid sensilla the only vestiture. Terminalia (Fig. 5): cerci about as long as hypoproct; hypoproct entire, slightly concave apically, with 3 pairs of short, ventroapical setae at corners; aedeagus slightly longer than hypoproct, narrow, not pointed apically; gonocoxal apodeme divided to base; gonostylus setulose only basolaterally, striate beyond.

♀ Abdomen. Tergites 1–7 as for 1–6 of male; tergite 8 square with row of short caudal setae, basal pair of trichoid sensilla, and bare elsewhere; length of tergite 7 about 0.14 length of distal half of ovipositor. Cerci (Fig. 6) long, attenuate, setulose throughout.

Larva. As for generalised *Resseliella* in Figs 7–8.

The combination of characters peculiar to this species within *Resseliella* are the toothed fore tarsal and simple mid and hind tarsal claws, the narrow aedeagus, the banded legs, and spotted wing.

Material examined: SOUTH AFRICA: *Cape Province*: 1 ♂ (holotype), Tygerhoek, 3419BB, Caledon Dist., reared 12.iii.1981 from heads of *Protea repens* (L.) L., D. J. Rust, Natal Museum (Type No. 2671); 1 ♂ and 4 ♀ (paratypes), same data as holotype; all in Natal Museum except 1 ♂ and 1 ♀ deposited in U.S. National Museum of Natural History, Washington, D.C.

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